

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) A system for providing to system users IP centric, multi-channel, time-shifted and real time telecommunication services such as live television, television on demand, video on demand, and karaoke on demand, comprising:

a first plurality of media content creation units in a media content creator subsystem for receiving multiple video signal streams each having one of several industry standard communication formats, and for converting the incoming video signal streams into digital data and compressing the digital data into IP based packets, for transmission over a broadband network;

a storage means for storing IP based packets and permitting stored IP based packets to be retrieved therefrom;

~~a gateway means for receiving packets from multiple sources and combining such packets for transmission over a broadband communication network;~~

a second plurality of distributed media streaming engines forming a media streaming subsystem for receiving the streams of IP based packets and storing the IP based packets in the storage means, each of said media streaming engines being responsive to a user request and operative to forward a selected stream of IP based packets from said content creator subsystem ~~to said gateway means~~ or to retrieve stored streams of IP based packets from said storage means and forward the retrieved IP packets ~~to said gateway means~~;

an output subsystem for delivering video, voice and data unified services receiving the selected stream of IP based packets or the retrieved IP packets and having routing engine modules (REM) for packet forwarding, packet engine modules (PEM) for packetizing voice and circuit mode signals and switch engine modules (SEM) connected to the REM and PEM for non-blocking traffic direction and

a content management subsystem for controlling user access to the system and providing user account management.

2. (original) The system of claim 1 wherein the content management subsystem provides at least: user authentication, user billing, intellectual property right management, management of quality of user services, and management of transmission channel bandwidth.
3. (original)The system of claim 1 wherein the digital data are encoded based on MPEG1.
4. (original)The system of claim 1 wherein the digital data are encoded based on MPEG2.
5. (original) The system of claim 1 wherein the digital data are encoded based on MPEG4.
6. (original)The system of claim 1 wherein the digital data are encoded based on H.263.
7. (original)The system of claim 1 wherein the source of the incoming video signal streams may include satellite, off the air television broadcasting, digital versatile disk, video cassette recorder, and live camera and cable television.
8. (currently amended) A system for providing to system users IP centric, multi-channel, time-shifted and real time telecommunication services such as live television, television on demand, video on demand, and karaoke on demand, comprising:
 - a first plurality of media content creations units for receiving multiple video signal streams each having one of several industry standard communication format, and for converting the incoming video signal streams into digital data for transmission over broadband network;
 - a storage means for storing the digital data and permitting stored digital data to be retrieved therefrom;
 - ~~a gateway means for receiving packets from multiple sources and combining such packets for transmission over a broadband communication network;~~
 - a second plurality of distributed media streaming engines for receiving encoded digital data, wherein encoded digital data is packetized by the media streaming engines and stored in the storage means, each of said media streaming engines being responsive to a user request and operative to forward a selected stream of digital data from said content creator subsystem as IP packets ~~to said gateway means~~ or to retrieve stored streams of digital data from said storage means and forward the retrieved data as IP packets ~~to said gateway means~~;

an output subsystem for delivering video, voice and data unified services receiving the selected stream of IP based packets or the retrieved IP packets and having routing engine modules (REM) for packet forwarding, packet engine modules (PEM) for packetizing voice and circuit mode signals and switch engine modules (SEM) connected to the REM and PEM for non-blocking traffic direction; and

a content management subsystem for controlling user access to the system and providing user account management.

9. (original)The system of claim 1 wherein the media streaming subsystem provides the user access to time-shifted television programming in an order selected by the user.
10. (original)The system of claim 1 wherein the media streaming subsystem may simultaneously provide multiple streams of IP based packets each encoded based on a different standard.
11. (previously amended)The system of claim 1 wherein the entire system is scalable by selection of the first and second plurality.
12. (currently amended)The system of claim 1 further comprising an output subsystem providing for seamless integration of the multiple telecommunication services including television on demand, video on demand, karaoke on demand, and Internet services, ~~and telephone services.~~
13. (original)The system of claim 1 wherein the system is capable of providing services to both wired and wireless networks.
14. (original)The system of claim 1 wherein the incoming video signal streams are in S-video format.
15. (original)The system of claim 1 wherein the incoming video signal streams are in NTSC/PAL composite TV signal format.
16. (original)The system of claim 1 wherein the incoming video signal streams are in RGB component video format.
17. (original)The system of claim 1 wherein the incoming audio signal streams are in two sound tracks.

18. (currently amended) A method for providing IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, said method comprising:

receiving multiple video signal streams each having one of several industry standard communication format by a first plurality of media content creation units forming a media content creator subsystem, and converting the incoming video signal streams into digital data and compressing the digital data into IP based packets, for transmission over broadband network;

storing IP based packets and permitting stored IP based packets to be retrieved from a storage means;

~~receiving packets from multiple sources via a gateway means and combining such packets for transmission over a broadband communication network;~~

receiving and ~~forwarding~~ the streams of IP based packets using a second plurality of media streaming engines forming a media streaming subsystem, and each being responsive to a user request and operative to forward a selected stream of IP based packets from either said content creator subsystem ~~to said gateway means~~ or to retrieve stored streams of IP based packets from said storage means and forward the retrieved IP packets ~~to said gateway means~~;

combining the selected stream or retrieved stored stream of IP based packets with voice and unified data services through an output system; and

controlling user access to the system and providing user account management

19. (original)The method of claim 18 further providing at least one of: user authentication, user billing, intellectual property right management, management of quality of user services, and management of transmission channel bandwidth.

20. (original)The method of claim 18 wherein the digital data are encoded based on MPEG 1.

21. (original)The method of claim 18 wherein the digital data are encoded based on MPEG2.

22. (original)The method of claim 18 wherein the digital data are encoded based on MPEG4.

23. (original)The method of claim 18 wherein the digital data are encoded based on H.263.

24. (original)The method of claim 18 wherein the source of the incoming video signal streams may include satellite, off the air television broadcasting, digital versatile disk, video cassette recorder, and live camera and cable television.

25. (currently amended) A method for providing IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, said method comprising:

receiving multiple video signal streams each having one of several industry standard communication format by a first plurality of content creation units, and converting the incoming video signal streams into digital data for transmission over broadband network;

storing the digital data and permitting stored digital data to be retrieved from a storage means;

~~receiving packets from multiple sources via a gateway means and combining such packets for transmission over a broadband communication network;~~

receiving and forwarding streams of digital data using a plurality of media streaming engines, wherein encoded digital data is packetized by such media streaming engines, each being responsive to a user request and operative to forward a selected stream of IP based packets from said content creation units ~~to said gateway means~~ or to retrieve stored streams of IP based packets from said storage means and forward the retrieved IP packets ~~to said gateway means~~;

combining the selected stream or retrieved stored stream of IP based packets with voice and unified data services through an output system; and

controlling user access to the system and providing user account management.

26. (original)The method of claim 18 wherein the media streaming subsystem provides the user access to time-shifted television programming in an order selected by the user.

27. (original)The method of claim 18 wherein the media streaming subsystem may simultaneously provide multiple streams of IP based packets each encoded based on a different standard.

28. (previously amended)The method of claim 18 wherein the entire system is scalable by selection of said first and second plurality.

29. (currently amended)The method of claim 18 further comprising providing for seamless integration of the multiple telecommunication services including television on demand, video on demand, karaoke on demand, and Internet services, ~~and telephone services.~~

30. (previously amended)The method of claim 18 wherein gateway is connected for providing services to both wired and wireless networks.

31. (original)The method of claim 18 wherein the incoming video signal streams are in S-video format.

32. (original)The method of claim 18 wherein NTSC/PAL composite TV signal format.

33. (original)The method of claim 18 wherein the incoming video signal streams are in RGB component video format.

34. (original)The method of claim 18 wherein the incoming audio signal streams are in two sound tracks.

35. (currently amended) A computer program embodied on a computer readable medium for providing IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, comprising:

a code segment for receiving multiple video signal streams each having one of several industry standard communication format by a first plurality of media content creation units forming a media content creator subsystem, and converting the incoming video signal streams into digital data and compressing the digital data into IP based packets, for transmission over broadband network;

a code segment for storing IP based packets and permitting stored IP based packets to be retrieved from a storage means;

~~a code segment for receiving packets from multiple sources via a gateway means and combining such packets for transmission over a broadband communication network;~~

a code segment for receiving and forwarding streams of IP based packets using a second plurality of media streaming engines forming a media streaming subsystem and each being responsive to a user request and operative to forward a selected stream of IP

based packets from said content creator subsystem ~~to said gateway means~~ or to retrieve stored streams of IP based packets from said storage means and forward the retrieved IP packets ~~to said gateway means~~;

a code segment for providing output of the selected stream or retrieved stream of IP packets with voice and unified data services with non-blocking routing; and

a code segment controlling user access to the system and providing user account management.

36. (original)The computer program product of claim 35 wherein the content management subsystem provides at least: user authentication, user billing, intellectual property right management, management of quality of user services, and management of transmission channel bandwidth.

37. (original)The computer program product of claim 35 wherein the digital data are encoded based on MPEG 1.

38. (original)The computer program product of claim 35 wherein the digital data are encoded based on MPEG2.

39. (original)The computer program product of claim 35 wherein the digital data are encoded based on MPEG4.

40. (original)The computer program product of claim 35 wherein the digital data are encoded based on H.263.

41. (original)The computer program product of claim 35 wherein the source of the incoming video signal streams may include satellite, off the air television broadcasting, digital versatile disk, video cassette recorder, and live camera and cable television.

42. (currently amended) A computer program embodied on a computer readable medium for providing IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, comprising:

a code segment for receiving multiple video signal streams each having one of several industry standard communication format by a first plurality of media content creation units forming a media content creator subsystem, and converting the incoming video signal streams into digital data ~~and compressing the digital data into IP-based packets~~, for transmission over broadband network;

a code segment for storing IP based packets and permitting stored IP based packets to be retrieved from a storage means;

~~a code segment for receiving packets from multiple sources via a gateway means and combining such packets for transmission over a broadband communication network;~~

a code segment for receiving and forwarding the streams of ~~IP based packets~~ digital data using a second plurality of media streaming engines forming a media streaming subsystem wherein encoded digital data is packetized by the media streaming subsystem for storing and each media streaming engine being responsive to a user request and operative to forward a selected stream of IP based packets of digital data from said content creator subsystem ~~to said gateway means~~ or to retrieve stored streams of IP based packets from said storage means and forward the retrieved IP packets ~~to said gateway means~~;

a code segment for providing output of the selected stream or retrieved stream of IP packets with voice and unified data services with non-blocking routing; and

a code segment controlling user access to the system and providing user account management.

43. (original)The computer program product of claim 35 wherein the media streaming subsystem provides the user access to time-shifted television programming in an order selected by the user.

44. (original) The computer program product of claim 35 wherein the media streaming subsystem may simultaneously provide multiple streams of IP based packets each encoded based on a different standard.

45. (previously amended)The computer program product of claim 35 wherein the entire system is scalable based on selection of the first and second plurality.

46. (currently amended)The computer program product of claim 35 further comprising a computer program product for providing for seamless integration of the multiple telecommunication services including television on demand, video on demand, karaoke on demand; and Internet services, ~~and telephone services.~~

47. (previously amended) The computer program product of claim 35 wherein the gateway is connected for providing services to both wired and wireless networks.

48. (original)The computer program product of claim 35 wherein the incoming video streams are in S-video format.

49. (original)The computer program product of claim 35 wherein the incoming video signal streams are in NTSC/PAL composite TV signal format.

50. (original) The computer program product of claim 35 wherein the incoming video signal streams are in RGB component video format.

51. (original)The computer program product of claim 35 wherein the incoming audio signal streams are in two sound tracks.

52. (currently amended)A method for receiving IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, said method comprising:

transmitting a user selection of a television program to a first plurality of content creation units in a remote system, wherein said system receives multiple format incoming video signals from multiple sources, converts the incoming video signals into digital data; encodes the digital data into IP based packets based on multiple compression standards, wherein said IP packets may be ready for transmission over a network, stores the IP based packets in an indexed, accessible database; and provides through a second plurality of distributed media steaming engines streams of IP based packets to the user upon request, with voice and unified data services entrained using routing engine modules and packet engine modules with switch engine modules for non-blocking routing over a broadband communication channel;

receiving streams of IP based packets representing the user selected television program.

53. (currently amended) A method for providing IP centric, multi-channel, time-shifted and real time telecommunication services including live television, television on demand, video on demand, and karaoke on demand, said method comprising:

converting multiple format video signal streams through a first plurality of media content creation units into IP based packets ready for transmission over broadband networks;

receiving, storing and forwarding the IP based packets through a second plurality of media streaming units, based on a request from a user, each said IP based packets

including data representing the converted and encoded content of a user requested program file;

providing user account management including controlling user access to the entire system;

providing a user interface means for a user to select time-shifted telecommunication services; and

providing ~~a gateway~~ an output system connected to the plurality of media streaming units for transmitting the user selected, IP based packets to the user over a broadband network with voice and unified data services.